

RECEIVED
CENTRAL FAX CENTER

NOV 20 2006

ACH 2958

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A continuous process comprising the steps of:
forming a suspension by dispersing a solid starting iron compound in a liquid;
continuously feeding the suspension through ~~one~~ two or more agitated conversion vessels
under hydrothermal conditions wherein the operating conditions in at least one of the
conversion vessels is different from the other conversion vessels;
converting the solid starting iron compound into a solid product iron compound, having
different physical, chemical, or structural properties from the solid starting iron
compound, in the ~~one~~ two or more agitated conversion vessels; and
continuously removing the solid product iron compound from the last of the ~~one~~ two or
more conversion vessels.

Claims 2 - 17 (Cancelled)

18. (Previously Presented) The process of claim 1, wherein the solid starting iron compound is selected from the group consisting of iron oxides, iron hydroxide, iron oxyhydroxides, and mixtures thereof.

19. (Previously Presented) The process of claim 1, wherein an additive-containing solid starting iron compound is used.

20. (Previously Presented) The process of claim 18, wherein the solid starting iron compound is an iron ore, a synthetic iron product, or a precipitated iron salt.

21. (Previously Presented) The process of claim 20, wherein the solid starting iron compound is an iron ore selected from the group consisting of goethite, akaganeite, bernalite, ferrosityte, ferrihydrite, lepidocrocite, limonite, maghemite, magnetite, hematite, and wustite.

ACH 2958

22. (Currently Amended) The process of claim 1, wherein the one or more agitated conversion vessels is a plug flow reactor having ~~an~~ a static mixer.

23. (Currently Amended) The process of claim 1, wherein the one or more agitated conversion vessels is a continuously stirred tank reactor having an axial mixer.

24. (Previously Presented) The process of claim 1, wherein the suspension flows substantially upward through the one or more conversion vessels.

25. (Previously Presented) The process of claim 1, wherein from two to five conversion vessels are employed.

26. (Cancelled)

27. (Currently Amended) The process of claim 26 1, wherein the pH in at least one of the conversion vessels is different from the other conversion vessels.

28. (Currently Amended) The process of claim 25 1, wherein an additive is added to at least one of the conversion vessels.

29. (Currently Amended) The process of claim 25 1, wherein seeds are added to at least one of the conversion vessels.

30. (Previously Presented) The process of claim 1 further comprising a feed preparation vessel wherein the suspension is prepared.

31. (Previously Presented) The process of claim 30, wherein the liquid is water.

32. (Previously Presented) The process of claim 30, wherein the liquid is an alcohol.

ACH 2958

33. (Currently Amended) The process of claim 30, wherein the liquid is a hydrocarbon ~~such as toluene, hexane, white spirits, and gasoline.~~

34. (Previously Presented) The process of claim 30, wherein at least one additive is added to the suspension.

35. (Previously Presented) The process of claim 34, wherein the additive includes a rare earth metal, a transition metal, a noble metal, and alkali metal, or an alkaline earth metal.

36. (Previously Presented) The process of claim 35, wherein the additive is an oxide, hydroxide, carbonate, or hydroxycarbonate.

37. (Previously Presented) The process of claim 30, wherein the temperature in the one or more conversion vessels ranges from 150 to 375°C.

38. (Previously Presented) The process of claim 1 wherein the solids to liquid ratio of the suspension entering the one or more conversion vessels ranges from 0.05:1 to 0.25:1.

39. (Previously Presented) The process of claim 38, wherein the solids to liquid ratio of the suspension exiting the last of the one or more conversion vessels ranges from 0.03:1 to 0.22:1.

40. (Previously Presented) The process of claim 1, wherein the solids content of the suspension entering the one or more conversion vessels deviates from the solids content of the suspension exiting the last of the one or more conversion vessels by less than 40 wt%.

ACH 2958

41. (Currently Amended) The process of claim 40, wherein the solids content of the suspension entering the one or more conversion vessels deviates from the solids content of the suspension exiting the last of the one or more conversion vessels by less than 20 25 wt%.

42. (Previously Presented) The process of claim 41, wherein the solids content of the suspension entering the one or more conversion vessels deviates from the solids content of the suspension exiting the last of the one or more conversion vessels by less than 10 wt%.

43. (Currently Amended) An apparatus for continuously converting a solid starting iron compound to a solid product iron compound comprising:

a feed preparation vessel wherein a suspension of the solid starting iron compound in a liquid is prepared;

one or more agitated conversion vessels operating under hydrothermal conditions to which the prepared suspension is continuously fed and wherein the solid starting iron compound is converted into a solid product iron compound having different physical, chemical, or structural properties from the solid starting iron compound; and

a cooling vessel wherein the solid product iron compound is cooled.

44. (Previously Presented) The apparatus of claim 43, further comprising a mill wherein the solid product iron compound is ground.

45. (Previously Presented) The apparatus of claim 43, further comprising a separation device for separating seeds.

46. (Previously Presented) The apparatus of claim 45, further comprising a means for recycling seeds to the mill.

ACH 2958

47. (Previously Presented) The apparatus of claim 43, further comprising a means for adding seeds to at least one of the one or more conversion vessels.

48. (Previously Presented) The apparatus of claim 43, further comprising a means for forming a shaped body comprising the solid product iron compound.

49. (Previously Presented) The apparatus of claim 48, further comprising a means for calcining the shaped body.

50. (Previously Presented) The apparatus of claim 49, wherein the shaped body is a catalyst for Fischer-Tropsch synthesis, Fluid Catalytic Cracking, Hydroprocessing, Hydrocracking, or Hydrogenation reactions.